

Claims

I claim:

1. A tunable prerequisite resolution engine for client devices in an Open Service Gateway

Initiative (OSGi) framework, comprising:

a prerequisite computation system for determining, on a server, necessary prerequisites for one or more OSGi bundle(s) to be run on a client device;

a bundle identification system for identifying possible combinations of OSGi bundles on the server that fulfill any of the necessary prerequisites that are lacking from the client device;

a data access system for accessing a configuration corresponding to the client device, wherein the configuration sets forth computer resource types, and corresponding normalization factors and importance factors for the client device; and

a bundle selection system for selecting a final combination of OSGi bundles from the possible combinations of OSGi bundles by processing the configuration and computing based on amounts of the computer resources needed by each of the possible combinations of OSGi bundles.

2. The tunable prerequisite resolution engine of claim 1, further comprising a communication system for communicating the prerequisites from the server to the client device, and for receiving a response from the client device, wherein the response identifies any of the necessary prerequisites that are lacking from the client device.

3. The tunable prerequisite resolution engine of claim 1, wherein the configuration is accessed from among a group of properties files, and wherein each of the group of properties files is configured for a particular different client device.

4. The tunable prerequisite resolution engine of claim 1, wherein the bundle selection system, comprises:

- an amount determination system for determining amounts of the computer resources needed by each of the possible combinations of OSGi bundles;

- a product determination system for determining products for each of the possible combinations of OSGi bundles by multiplying each of the amounts by the corresponding normalization factors and importance factors set forth in the configuration;

- a score determination system for determining a composite score for each of the possible combinations of OSGi bundles by summing the corresponding products; and

- a bundle system for selecting the final combination of OSGi bundles from the possible combinations of OSGi bundles based on the composite scores.

5. The tunable prerequisite resolution engine of claim 1, wherein the computer resources types are selected from the group consisting of a bundle storage requirement, a new space size, an old space size, an open file quantity, a quota, a memory requirement, a socket quantity, and a thread quantity.

6. The tunable prerequisite resolution engine of claim 1, further comprising a configuration system for setting the configuration for the client device.
7. The tunable prerequisite resolution engine of claim 1, wherein the prerequisites comprise at least one of a service and/or package.
8. The tunable prerequisite resolution engine of claim 1, wherein the client device comprises:
 - an analysis system for determining whether any of the necessary prerequisites are lacking from the client device; and
 - a response system for generating and sending a respond to the server.
9. The tunable prerequisite resolution engine of claim 1, wherein the client device communicates with the server over the Internet.
10. The tunable prerequisite resolution engine of claim 1, wherein the configuration sets forth computer resource types, and corresponding normalization factors and importance factors for a particular type of client device.
11. The tunable prerequisite resolution engine of claim 1, wherein the configuration sets forth computer resource types, and corresponding normalization factors and importance factors for a group of client devices.

12. A computer-implemented method for resolving prerequisites for client devices in an Open Service Gateway Initiative (OSGi) framework, comprising:

determining, on a server, necessary prerequisites for an OSGi bundle to be run on a client device;

identifying possible combinations of OSGi bundles on the server that fulfill any of the necessary prerequisites that are lacking from the client device;

accessing, from the server, a configuration corresponding to the client device, wherein the configuration sets forth computer resource types and corresponding normalization factors and importance factors for the client device; and

selecting a final combination of OSGi bundles from the possible combinations of OSGi bundles by processing the configuration based on amounts the computer resources needed by each of the possible combinations of OSGi bundles.

13. The method of claim 12, further comprising:

querying the client device to determine if the client device has the necessary prerequisites; and

receiving a response from the client device that identifies any of the necessary prerequisites that are lacking on the client device, prior to the determining step.

14. The method of claim 13, further comprising caching the response on the server.

15. The method of claim 12, wherein the selecting step comprises:

determining amounts of the computer resources needed by each of the possible combinations of OSGi bundles;

determining products for each of the possible combinations of OSGi bundles by multiplying each of the amounts by the corresponding normalization factors and importance factors set forth in the properties files;

determining a composite score for each of the possible combinations of OSGi bundles by summing the corresponding products; and

selecting the final combination of OSGi bundles from the possible combinations of OSGi bundles based on the composite scores.

16. The method of claim 15, wherein the possible combination of OSGi bundles having the lowest composite score is selected as the final combination of OSGi bundles.

17. The method of claim 12, wherein the configuration is accessed from among a group of properties files, and wherein each of the group of properties files is configured for a specific client device.

18. The method of claim 12, wherein the computer resources types are selected from the group consisting of a bundle storage requirement, a new space size, an old space size, an open file quantity, a quota, a memory requirement, a socket quantity, and a thread quantity.

19. The method of claim 12, wherein the prerequisites comprise at least one of a service and a package.

20. The method of claim 12, wherein the method is performed recursively.

21. A program product stored on a recordable medium for automatically resolving prerequisites for client devices in an Open Service Gateway Initiative (OSGi) framework, which when executed, comprises:

program code for determining, on a server, necessary prerequisites for an OSGi bundle to be run on a client device;

program code for determining possible combinations of OSGi bundles on the server that fulfill any of the necessary prerequisites that are lacking from the client device;

program code for accessing a configuration corresponding to the client device, wherein the configuration sets forth computer resource types and corresponding normalization factors and importance factors for the client device; and

program code for selecting a final combination of OSGi bundles from the possible combinations of OSGi bundles by processing the configuration based on amounts of the computer resources needed by each of the possible combinations of OSGi bundles.

22. The program product of claim 21, further comprising a program code for communicating the prerequisites from the server to the client device, and for receiving a response from the client device, wherein the response identifies any of the necessary prerequisites that are lacking from the client device.

23. The program product of claim 21, wherein the configuration is accessed from among a group of properties files, and wherein each of the group of properties files is configured for a particular different client device.

24. The program product of claim 21, wherein the program code for selecting, comprises:

program code for determining amounts of the computer resources needed by each of the possible combinations of OSGi bundles;

program code for determining products for each of the possible combinations of OSGi bundles by multiplying each of the amounts by the corresponding normalization factors and importance factors set forth in the configuration;

program code for determining a composite score for each of the possible combinations of OSGi bundles by summing the corresponding products; and

program code for selecting the final combination of OSGi bundles from the possible combinations of OSGi bundles based on the composite scores.

25. The program product of claim 21, wherein the computer resource types are selected from the group consisting of a bundle storage requirement, a new space size, an old space size, an open file quantity, a quota, a memory requirement, a socket quantity, and a thread quantity.

26. The program product of claim 21, further comprising program code for configuring the configuration for the client device.

27. The program product of claim 21, wherein the prerequisites comprise at least one of a service and a package.

28. The program product of claim 21, wherein the client device comprises:

program code for determining whether any of the necessary prerequisites are lacking from the client device; and

program code for generating and sending a respond to the server.

29. The program product of claim 21, wherein the client device communicates with the server over the Internet.

30. The program product of claim 21, wherein the configuration sets forth computer resource types, and corresponding normalization factors and importance factors for a particular type of client device.

31. The program product of claim 21, wherein the configuration sets forth computer resource types, and corresponding normalization factors and importance factors for a group of client devices.